(No Model.)

J. A. TILDEN.

ROTARY WATER METER.

No. 423,289. Patented Mar. 11, 1890.

Fig. 1.

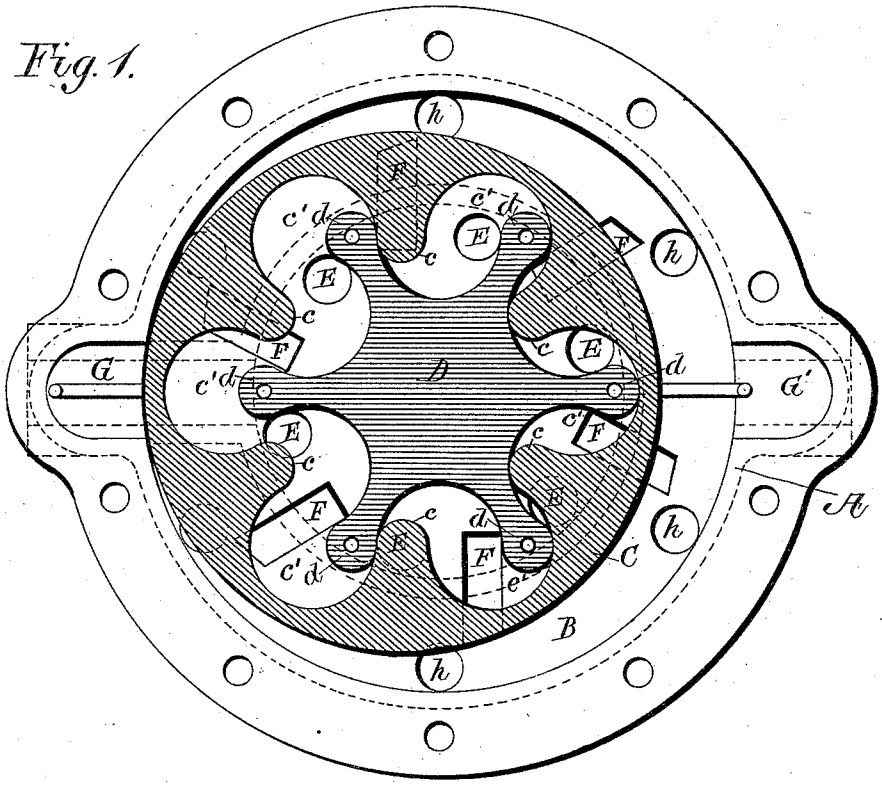
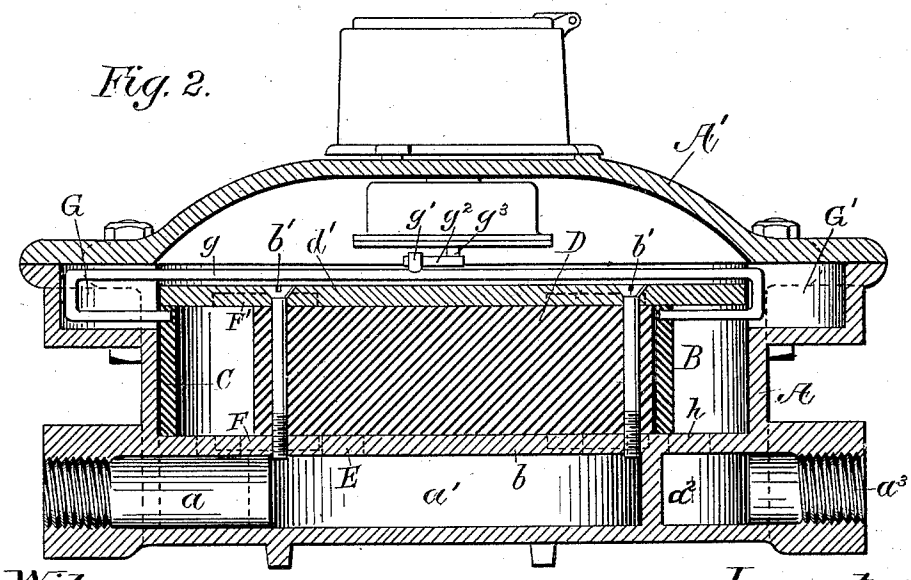


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES A. TILDEN, OF HYDE PARK, MASSACHUSETTS.

ROTARY WATER-METER.

SPECIFICATION forming part of Letters Patent No. 423,289, dated March 11, 1890.

Application filed July 23, 1887. Serial No. 245,472. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. TILDEN, of Hyde Park, in the county of Norfolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Fluid-Meters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is an improvement upon that described in my Letters Patent, Reissue No. 10,778, dated November 2, 1886, original No. 324,503, dated August 18, 1885. In the said patent I have described a fluid-meter having a stationary wall provided with measuring-spaces or recesses opening from a piston-chamber, the ends of the chamber being closed by fixed parallel heads, a movable piston of less diameter than that of the chamber accurately fitted between said heads, and having lobes and projections equal in number to the measuring-spaces, and each lobe moving in and conforming to the spaces, and an inlet-port for supplying to each measuring-space fluid under pressure, and outlet-ports at each end of the piston, extending from each measuring-space to an escape-passage, whereby the piston is balanced in its function as a fluid-actuating valve.

In the present invention, instead of the stationary piston-chamber wall and a movable piston, I employ a stationary piston and a movable wall having measuring spaces or recesses formed in it and movable therewith. The piston and the wall have the same shape as like parts described in my said patent.

The invention varies from that described in my said patent in such other respects as are necessary, owing to the change of movement from the piston to the wall. Each movable measuring space or recess has an inlet and an outlet for the admission and escape of fluid under pressure, and the wall is balanced as far as practicable, the end pressure caused by the escape of fluid through the escape-ports being balanced by end pressure upon the opposite end of the wall provided by ports or depressions formed in the upper head or plate.

In the drawings, Figure 1 is a view in plan of the lower portion of the meter-case and in horizontal section of the stationary piston and movable wall. Fig. 2 is a view principally in vertical central section.

Referring to the drawings, A represents the lower section of the meter-case, and A′ the upper section thereof. The lower section has the inlet-passage a, the distributing-chamber a', and the outlet-chamber a^2 and outlet-passage a^3. It has also the chamber B, which is separated from the distributing-chamber a' and outlet-chamber a^2 by the metal plate b, cast with the case, and in which the inlet and a portion of the outlet ports are formed. This chamber B contains the movable wall C and the stationary piston D. The stationary piston D has the lobes or projections d, and is secured with the plate d' to the plate b by means of screws or bolts b', so that the plate d' and the piston are held stationary. With this exception—that is, with the exception that it is stationary—it is like the piston described in my said patent. The wall C has the inwardly-extending projections c and the measuring spaces or recesses c', and this wall is in every respect like that described in my said patent, excepting that it is movable, so that its measuring spaces or recesses are caused to be moved relatively to the lobes d of the piston in exactly the same way that the lobes of the piston described in my said patent are moved in relation to the measuring spaces or recesses of the stationary wall of the invention therein specified. This movement of the wall is not a rotary movement over every part thereof upon a fixed center—like, for instance, that of a wheel—but is a movement which, while the wall itself does not rotate, causes each part thereof to describe a rotary movement in a small space, and causes its measuring space or recess to describe a rotary movement in regard to each respective lobe of the piston. There must, of course, be sufficient space outside of the movable wall and in the chamber B to permit this movement of the wall to take place, and the plate d' extends sufficiently to form a cover to the movable measuring spaces or recesses.

E represents the various inlet-ports—a separate inlet-port for each measuring space or recess.

F represents the outlet-ports, there being

separate outlet-ports for each measuring space or recess. The ports are like those described in my said patent, and are opened and closed by the movable wall, and the escaping fluid must exert end pressure thereon, which would tend to move the wall forcibly against the stationary head or plate d', and I have formed in the stationary plate d' ports or depressions F′, which ports permit fluid under pressure to bear against the reverse or opposite end of the piston, and thus counteract the effect of the pressure of the fluid passing through the ports.

To communicate the movement of the piston to the register, I have formed in the case two chambers or recesses G G′, which are oppositely arranged, and I have attached to the movable wall the rod g, the rod being bent at each end and returned to permit the proper movement of the wall in relation to the head d'. The rod has a stud or pin g', which forms connection with the arm or lever g^2, attached to the shaft g^3 of the registering mechanism, and communicates a rotary movement thereto.

The chamber B outside the movable wall discharges water through the holes h from the outlet-chamber a^2 in order to provide the movable wall with a uniform pressure upon its outer surface, and thereby permit it to be moved with as little friction as possible. The wall C is caused to be moved by the pressure of the fluid thereon relatively to the stationary piston in the same manner and for the same reasons that the piston is caused to describe its movement in relation to the stationary wall mentioned in said patent.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, in a meter, of the case A, having the recesses G G′, the stationary piston D, having the lobes d, the movable wall C, having measuring spaces or recesses c', the inlet and exhaust ports, the registering mechanism, and the bent rod g, attached to the piston-wall, extending into the recesses G G′, and communicating the movement of the piston-wall to the registering mechanism, substantially as described.

2. In a fluid-meter, the stationary piston or block having lobes d, a movable wall having measuring spaces or recesses c', and oppositely-arranged ports in the heads or plates b b', arranged to conduct fluid-pressure to both ends of the movable wall, as and for the purposes specified.

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